



August 6, 2008

Via Electronic Filing

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, SW, TW - A325
Washington, DC 20554

Re: WT Docket Nos. 07-195, 04-356 - Notification of Oral Ex Parte Presentation

Dear Ms. Dortch:

On August 5, 2008, Paul Kolodzy and the undersigned, on behalf of M2Z, met Bruce Gottlieb, Legal Advisor to Commissioner Michael C. Copps, and Michael Steffen, legal intern in the office of Commissioner Copps. During the meeting, we dispelled claims of T-Mobile and AT&T and other carriers that it is impossible for TDD operations in AWS-3 to coexist with FDD operations in AWS-1 by demonstrating how TDD and FDD operations are deployed next to each other globally, using generally accepted OOBE and power limits, as fully described in M2Z's July 28, 2008 Ex Parte Presentation to the FCC's Wireless Telecommunications Bureau and the Office of Engineering and Technology.

We explained that the departure from FCC precedent advocated by T-Mobile and other opponents to the pending AWS-3 item will be a step backward relative to the findings of other international regulators and their decisions to use spectrum efficiently to promote greater access to broadband. As described in the attached presentation, we also provided evidence that multiple tests and studies have been previously conducted by international regulators including the ITU and the United Kingdom's OfCom to study the potential of harmful interference for both base-to-base and mobile-to-mobile interference in adjacent TDD and FDD bands including tests using UMTS handsets similar to the ones currently being deployed in the United States in the AWS-1 handsets. Analysis of the full range of data available to the FCC conclusively shows that:

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- Interference is not unilateral and involves both base to base as well as mobile to mobile and that opponents of TDD deployment in AWS-3 have failed to provide evidence to the contrary;
- The greater threat of harmful interference is a result of base to base interference in which instance AWS-3 operator would be the victim;
- The onerous technical requirements urged by the AWS-1 licensees lack precedent in the U.S. and in the international community; and lastly
- There is no need for the FCC to engage in further testing given that 4 tests have already been submitted into the AWS-3 record so far (Verizon/Avago, Alion, OfCom, and T-Mobile).

To further emphasize the modern approach used by other international regulatory bodies and the lack of consistency in the statements opposing the pending AWS-3 item, we also devoted a portion of our presentation to a discussion that focused on T-Mobile's operations in the Czech Republic. As previously filings by M2Z demonstrate, T-Mobile is currently deploying a mobile broadband network in a UMTS TDD band adjacent to a UMTS FDD band in the Czech Republic despite the fact that: (1) there are no mobile power limits; (2) there are no "large guard bands;"¹ (3) T-Mobile's TDD operations are significantly closer (spectrally) to ongoing FDD operations than the unreasonable separation distance T-Mobile claims is needed between FDD and TDD here in the U.S.² and (4) T-Mobile as the potential victim of mobile-to-mobile interference is protected by an OOB limit of $43 + 10 \log(P)$. The very conditions under which T-Mobile successfully operates in the Czech Republic are those that it claims are insurmountable in the United States. The Czech

¹ Letter of Howard J. Symons, Counsel for T-Mobile to Marlene H. Dortch, WT Docket 07-195 (July 18, 2008).

² As noted in the attached presentation, T-Mobile's TDD operations are 5.2 MHz away from FDD operations in the Czech Republic despite the fact that T-Mobile claims that 12.5 to 13 MHz of separation is needed between such services in the U.S. In recent press reports, T-Mobile claims that there is a 5 MHz "guard band" separating its Czech TDD operations from FDD operations. That assertion is not factual. In the Czech Republic, 5 MHz of unassigned spectrum lies adjacent to T-Mobile's operations. When that 5 MHz band is ultimately licensed, there will be a mere 200 kHz separating TDD and FDD operations and the service rules will still provide for no power limits and a $43 + 10 \log(P)$ OOB limit to protect against potential mobile-to-mobile interference. While T-Mobile describes this unassigned spectrum as "guard band," the Czech Republic regulators do not. T-Mobile appears to believe that once it is assigned spectrum (whether domestically or abroad) those license rights also permit it to insist that the adjacent spectrum bands remain fallow. That is not true in the Czech Republic and it is certainly not true in the United States. Moreover, T-Mobile's "guard band" claim does not even address the key issue here — the inconsistent nature of its AWS-3 advocacy.

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Republic example is additional evidence that the FCC need not heed the calls for radical departure from its technical precedent as it establishes service rules for the AWS-3 band. To the extent T-Mobile-USA has concerns about coexistence between FDD and TDD, its Czech Republic unit should be able to provide it with beneficial data based on real world close in proximity deployment experience, rather than static tests designed to obtain worst case scenario results.

Enclosed is the new presentation we provided at the meeting. Pursuant to Section 1.1206(b) of the Commission rules, an electronic copy of this letter is being filed. Please let me know if you have any questions regarding this submission.

Sincerely,

/s/ John B. Muleta

John B. Muleta

cc: Mr. Bruce Gottlieb
Mr. Michael Steffen

Attachments (1)

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AWS-3

5 August 2008

Overview:

- » Incumbent carriers falsely claim that TDD operations cannot operate adjacent to FDD operations.
- » This is not true as evidenced by, among other things, T-Mobile's operations in the Czech Republic.
- » The claims that TDD and FDD cannot coexist are premised on "perfect storm" or worst case scenario interference analysis, which has been soundly rejected by standards setting organizations and prominent regulators such as ITU and Ofcom.
- » The proper analysis uses a statistical or probabilistic method and shows that interference scenarios are negligible.
- » Further testing would add nothing meaningful to the record which contains the results of three rounds of testing and would only contribute to delay, during which more faulty handsets will come into the market.

Incumbent Carriers Falsely Claim that TDD Operations Cannot Operate Adjacent to FDD Operations -- Case Study: the Czech Republic

UMTS TDD

TDD base to
FDD base

UMTS TDD/FDD Uplink

T-Mobile

Telefonica
O2



4G modem

Prostě brouzdám



1910.1

1915.1

1920.1
1920.3

FDD mobile to
TDD mobile

1940.1



- Max. Standby Time (max - hrs): up to 280
- Battery: Li-Ion 1200mAh
- Recharge time: cca 2 h
- GSM Frequency: 900/1800/1900/3G
- Phone Number Memory: memory + 250
- Cable connection to PC



http://www.cz.o2.com/osobni/en/telefon_y_a_zarizeni/mobilni_telefony/d...

- UMTS/HSDPA (850, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- Wi-Fi (802.11b/g)
- Bluetooth 2.0 + EDR

http://www.cz.o2.com/osobni/en/telefon_y_a_zarizeni/iphone/index.html

4G modem je externí modem určený pro použití v sítích UMTS TDD 1 900 MHz (na území Prahy) a UMTS TDD 872 MHz (řada měst v ČR mimo Prahu, podrobnější informace jsou uvedené v popisu služby), obchodní název nabízené služby je Internet 4G. Tento dvoupásmový modem uživateli poskytne rychlé bezdrátové datové připojení k Internetu prostřednictvím sítě TDD v kterémkoliv z výše zmíněných pásem.

<http://t-mobile.cz/Web/Residential/Telefony/Telefon.aspx/4G/modem/Te...>

- T-Mobile is currently providing broadband service equivalent to ADSL using a TDD spectrum band next to an FDD band in the Czech Republic.
- T-Mobile's FNPRM comments claim: "at least 12.5 to 13 MHz of guard band" is needed between TDD and FDD. Yet its Czech TDD operations are 5.2 MHz away from FDD.

Worst Case Analysis use by AWS-1 Licensees is Dismissed by Regulatory and Equipment Standards Groups

- » Motorola is a user of statistical techniques for the design of new systems (W-CMDA – 3G, and OFDMA – 4G)
- » 3GPP (W-CDMA and LTE Equipment Standards organization of which Nokia, Qualcomm, Motorola, etc are members) uses statistical (aka Monte Carlo) techniques for their FDD-TDD coexistence studies
- » The ITU and the UK Regulator Ofcom use statistical methods for their coexistence studies
- » Modern interference analysis techniques rely on statistical methodologies, contrary to claims by AWS-1 licensees.

AWS-1 \leftrightarrow AWS-3 Interference Scenarios are Mutual

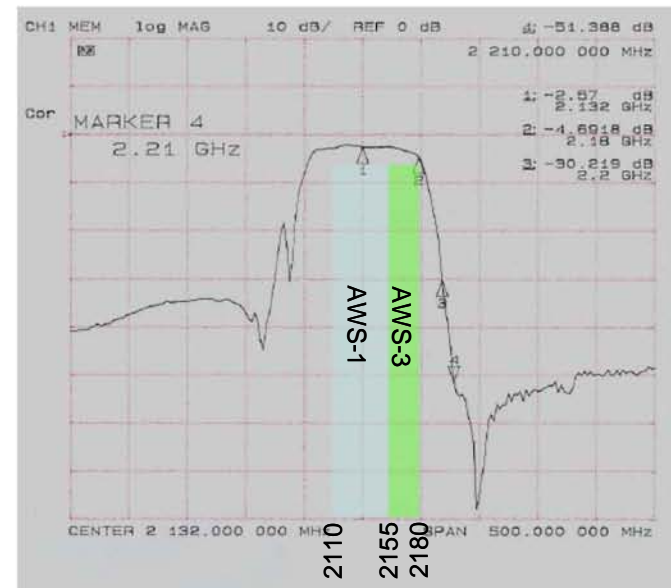
- » **CTIA (in June) claimed that “interference would be asymmetrical (received by AWS-1).” Then (in July) T-Mobile claimed that “mobile-to-mobile interference is more severe than other forms of interference, including base-to-base interference.” Both of these mutually exclusive claims are directly countered by both the ITU and Ofcom.**
 - “The potential for base-to-base interference plays a central role in the definition of technical conditions for spectrum use at the frequency boundaries which separate paired (FDD) and unpaired (TDD) spectrum.” [Ofcom 2500-2690 Ruling]
 - “Due to the existence of LOS between base stations, the worst adjacent channel interference is experienced between the base stations of these two systems.” [ITU-R M.2113]
- » **All neutral analysis of FDD/TDD coexistence indicates that both base-to-base and mobile-to-mobile interference potential exists and while both cases are resolvable, the base-to-base scenario is more challenging.**

Ofcom Technical Rules permit FDD-TDD Coexistence

- » Exhaustive analysis by Ofcom conclusively demonstrates acceptable coexistence between FDD-TDD and possible with CURRENT 3G equipment
 - Ofcom performed testing on 3G handsets to determine characteristic to be used in detailed statistical analysis
 - Ofcom determined that a 5 MHz “restricted use band” be placed between FDD-TDD and TDD-TDD to allow “*viable mitigation of base-to-base interference*”
- » Ofcom determined that a $49 + 10 \log (P)$ was sufficient to protect FDD handset after testing CURRENT 3G equipment.

No New Insights from Equipment Testing

- » Equipment testing does not provide any new information for statistical interference analysis
 - Alion used equipment characteristics in analysis;
 - T-Mobile and Avago have provided testing results;
 - Ofcom already performed testing on 3G handsets to determine characteristic to be used in detailed statistical analysis and found they performed better than expected;
 - Ofcom and Alion statistical analysis provides sound basis for AWS-3 decision
- » Equipment testing will produce more delay without providing any new information that should impact efficacy of AWS-3 rules
 - Delay only puts more incorrectly designed handsets into the production pipeline



Receive Pass Band from Handset Operating in F-Block

Summary:

- **FDD/TDD coexistence in AWS-3/AWS-1 is possible as evidenced by T-Mobile's TDD operations which are in close spectral proximity to FDD operations in Czech Republic.**
- **Worst case analysis use by AWS-1 licensees is far from the international norm and has been dismissed by regulatory and equipment standards groups.**
- **AWS-1 \leftrightarrow AWS-3 Interference scenarios are mutual and resolvable.**
- **The U.S. is not breaking new ground here as Ofcom technical rules permit FDD-TDD coexistence.**
- **No meaningful insights will emerge from additional equipment testing.**